

REMARKS/ARGUMENTS

Claims 1, 3-8, 10-14 and 16-19 are pending in the application. Claims 2, 9, and 15 have been canceled without prejudice or disclaimer. Claims 1, 8, and 14 have amended to incorporate the subject matter of the canceled claims as further described at page 13, lines 10-13, of the specification, for example. Claims 3, 4, 10, 11, 16, and 17 have been amended to be consistent with the cancellation of Claims 2, 9, and 15. Accordingly, the changes to the claims have been made without incorporating any new matter.

The outstanding Office Action presents a rejection of Claims 1, 2, 5, 8, 9, 12, 14, 15, and 18 under 35 U.S.C. §103(a) as unpatentable over Suzuki et al. (U.S. Patent No. 6,573,912, Suzuki) in view of Kawasaki et al. (Image-based rendering for mixed Reality,” Kawasaki), Sillion et al. (Efficient Imposter Manipulation for Real-Time Visualization of Urban Scenery,” Sillion), and Dobashi et al. (“A Simple, Efficient Method for Realistic Animation of Clouds,” Dobashi), presents a rejection of Claims 13 and 19 under 35 U.S.C. §103(a) as unpatentable over Suzuk in view of Kawasaki, Sillion, and Dobashi in further view of Neugebauer (“Geometrical Cloning of 3D Objects . . .,” Neugebauer), presents a rejection of Claims 3, 10, and 16 under 35 U.S.C. §103(a) as unpatentable over Suzuki in view of Kawasaki, Sillion, and Dobashi in further view of Ogata et al. (U.S. Patent No. 6,313,841, Ogata), and presents a rejection of Claims 4, 6, 7, 11, and 17 under 35 U.S.C. §103(a) as unpatentable over Suzuki in view of Kawasaki, Sillion, and Dobashi in further view of Gannett (U.S. Patent No. 6,118,452).

Initially, Applicants thank Examiners Wu and Prendergast for meeting with Applicants representative to discuss the references relied upon that are not properly cited on a form PTO 892 and the issue of the “Microfacet Billboarding” article by applicants and Mr. Sakauchi, a co-author but not an inventor. The operation of the invention was further explained. The reasons that the present relied upon references could not be properly

combined, and even if combined would not teach the present invention were presented, all as explained in detail below.

With regard to the relied upon Kawasaki and Sillion references, the failure of the PTO to indicate these references on a form PTO-892 was acknowledged but the availability of these references from PAIR was noted. The examiners indicated that these references would be cited on a form PTO-892 to accompany the next Action.

In addition to the Kawasaki and Sillion references not being properly cited on a form PTO-892, it is again noted that the Neugebauer article also needs to be cited on a form PTO-892 as indicated in the last response.

With regard to the issue of the “Microfacet Billboarding” article by applicants and Mr. Sakauchi, a co-author but not an inventor, applicants representative noted that an appropriate *In re Katz* declaration would be filed as noted in MPEP § 715.01(c)(I). This declaration is attached.

The rejection of Claims 1, 2, 5, 8, 9, 12, 14, 15, and 18 under 35 U.S.C. §103(a) as unpatentable over Suzuki in view of Kawasaki, Sillion, and Dobashi is respectfully traversed because even if these references were to be combined for some unknown and unknowable reason, the result could not be the subject matter claimed because none of these references teach or suggest generating “a plurality of microfacets as two dimensional elements that are each centered inside a respective voxel in a manner to approximate a three-dimensional shape of the geometrical shape model” as the pending claims all require.

In this regard, it is clear that the col. 3, lines 1-5 teaching of Suzuki, relied on in the outstanding Action to teach generating “a plurality of microfacets” that are “used to approximate a shape of the geometrical shape model” (see, e.g. page 3, line 16 of the outstanding Action), only notes a known approximation as between voxels used to create a triangular mesh model after evaluating all of the voxels, which approximation was used

elsewhere (the articles noted at col. 3, lines 9-16) and not suggested for use in the Suzuki virtual system. It is further clear that this approximation as between voxels used to create a triangular mesh model after evaluating of all of the voxels teaches or suggests nothing as to the required plurality of microfacets” that must be generated as “two dimensional elements that are each centered inside a respective voxel.”

Moreover, and as previously noted this triangular mesh model is clearly for final viewing and cannot be said to be anything but an alternative to the other recovery techniques for recovering a complete three-dimensional model discussed by Suzuki, see col.2, line 53-col. 3, line 21, for example.

Similarly, the teachings of Suzuki at relied upon col. 3, lines 42-52 and col.10, lines 1-18 are not relevant to the known approximation as between voxels used to create a triangular mesh model after evaluating of all of the voxels noted at col. 3, lines 1-16. The outstanding Action mixes and substitutes teachings from Suzuki that are not suggested by Suzuki to be so mixed and matched.

Also, and as noted during the discussion, Suzuki teaches computing a silhouette from background subtracted images by the silhouette processor 126 and uses these results to compute the intersection of rays created by projecting through the silhouettes using the intersection processor 128. As also noted at the discussion, replacing such silhouette related processing with an optical arrangement to detect distance as in Kawasaki would require a complete redesign of Suzuki and changing the basic operation thereof. Such modifications cannot be said to establish a reasonable case as to *prima facie* obviousness. See *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Returning to the lack of any reasonable teaching of the claimed plurality of microfacets that must be generated “as two dimensional elements that are each centered inside a respective voxel,” the teaching at page 940, Fig. 3, sections 2.1 and 2.2 of Kawasaki

(asserted at the bottom of page 4 of the outstanding Action) do not supply this teaching simply by illustrating a polygonal model.

Also the teachings of Sillion (noted in the first full paragraph on page 5 of the outstanding Action as to pages 6 and 8 and section 4.2) have no teachings or suggestions of the required generation of the claimed plurality of microfacets that must be generated “as two dimensional elements that are each centered inside a respective voxel.”

Furthermore, the attempt to combine the teachings of Kawasaki, and Sillion at page 7, lines 5-16, of the outstanding Action are insufficient to show how these references, even if somehow combined, teach or suggest generating a plurality of microfacets “as two dimensional elements that are each centered inside a respective voxel.”

Just as the relied upon teachings of Suzuki, Kawasaki, and Sillion, do not suggest the claimed generating of a plurality of microfacets “as two dimensional elements that are each centered inside a respective voxel,” neither do the teachings of Dobashi that are noted in the paragraph bridging pages 5 and 6 of the outstanding Action.

Neugebauer and Gannett are relied on to teach clipping and Ogata is relied upon to teach controlling voxel generation. These references clearly do not suggest the claimed generating of a plurality of microfacets “as two dimensional elements that are each centered inside a respective voxel.”

Accordingly, as no reference relied upon in any of the outstanding rejections teaches the required generating of a plurality of microfacets “as two dimensional elements that are each centered inside a respective voxel” as recited by the independent claims and, thus, incorporated into the dependent claims, the rejection applied to Claims 1, 2, 5, 8, 9, 12, 14, 15, and 18 under 35 U.S.C. §103(a) as unpatentable over Suzuki in view of Kawasaki, Sillion, and Dobashi, the rejection applied to Claims 13 and 19 under 35 U.S.C. §103(a) as unpatentable over Suzuki in view of Kawasaki, Sillion, and Dobashi in further view of

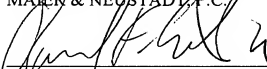
Neugebauer, the rejection of Claims 3, 10, and 16 under 35 U.S.C. §103(a) as unpatentable over Suzuki in view of Kawasaki, Sillion, and Dobashi in further view of Ogata, and the rejection of Claims 4, 6, 7, 11, and 17 under 35 U.S.C. §103(a) as unpatentable over Suzuki in view of Kawasaki, Sillion, and Dobashi in further view of Gannett are all traversed.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicant's undersigned representative at the below listed telephone number.

As no further issues are believed to remain outstanding in the present application, it is believed that this application is clearly in condition for formal allowance and an early and favorable action to that effect is, therefore, respectfully requested.

Respectfully submitted,

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